

Claims

[c1] What is claimed is:

1. A light emitting device comprising:
a micro-reflection structure carrier;
a reflection layer formed over the micro-reflection structure carrier;
a transparentadhesive layer formed over the reflection layer; and
a light emitting stack layer formed over the transparentadhesive layer.

[c2] 2. The light emitting device of claim 1 further comprising
a first reaction layer between the reflection layer and the transparentadhesive layer.

[c3] 3. The light emitting device of claim 1 further comprising
a second reaction layer between the transparentadhesive layer and the light emitting stack layer.

[c4] 4. The light emitting device of claim 1 further comprising
a first electrode and a second electrode formed on the same upper surface of the light emitting stack layer.

[c5] 5. The light emitting device of claim 1 further comprising
a first electrode and a second electrode formed on the

upper surface of the light emitting stack layer and the lower surface of the micro-reflection structure carrier respectively.

- [c6] 6. The light emitting device of claim 1, wherein the light emitting stack layer comprises:
- a second reaction layer formed over the transparent adhesive layer;
 - a first transparent conductive layer formed over the second reaction layer;
 - a first contact layer formed over the transparent conductive layer;
 - a first cladding layer formed between the first contact layer and the light emitting layer;
 - a second cladding layer formed over the light emitting layer;
 - a second contact layer formed over the second cladding layer;
 - a first electrode; and
 - a second electrode formed over the second contact layer.
- [c7] 7. The light emitting device of claim 6, wherein the transparent conductive layer has a first surface area and a second surface area, the first contact layer is formed over the first surface area, and the first electrode is formed over the second surface area.

- [c8] 8. The light emitting device of claim 7 further comprising a transparent carrier between the second reaction layer and the transparent conductive layer.
- [c9] 9. The light emitting device of claim 6, wherein the micro-reflection structure carrier is a conductive micro-reflection structure carrier, the transparent adhesive layer is a transparent conductive adhesive layer, and the first electrode is formed over a lower surface of the conductive micro-reflection structure carrier.
- [c10] 10. The light emitting device of claim 1, wherein the shape of the micro-reflection structure carrier comprises at least one shape selected from a group consisting of a hemisphere and a pyramid.
- [c11] 11. The light emitting device of claim 1, wherein the micro-reflection structure carrier comprises at least one material selected from a group consisting of GaP, GaAs, GaAsP, InGaP, AlGaInP, AlGaAs, Si, SiC, glass, BN, AlN, and Ge.
- [c12] 12. The light emitting device of claim 9, wherein the conductive micro-reflection structure carrier comprises at least one material selected from a group consisting of Si, GaAs, SiC, GaP, GaAsP, InGaP, AlGaInP, AlGaAs, BN, and AlN.

- [c13] 13. The light emitting device of claim 8, wherein the transparent carrier comprises at least one material selected from a group consisting of GaP, SiC, Al_2O_3 , and glass.
- [c14] 14. The light emitting device of claim 1, wherein the reflection layer comprises at least one material selected from a group consisting of Sn, Al, Au, Pt, Zn, Ag, Ti, Pb, Pd, Ge, Cu, AuBe, AuGe, Ni, PbSn, and AuZn.
- [c15] 15. The light emitting device of claim 1, wherein the transparent adhesive layer comprises at least one material selected from a group consisting of polyimide (PI), benzocyclobutane (BCB), and perfluorocyclobutane (PFCB).
- [c16] 16. The light emitting device of claim 2, wherein the first reaction layer comprises at least one material selected from a group consisting of SiN_x , Ti, and Cr.
- [c17] 17. The light emitting device of claim 3, wherein the second reaction layer comprises at least one material selected from a group consisting of SiN_x , Ti, and Cr.
- [c18] 18. The light emitting device of claim 6, wherein the second reaction layer comprises at least one material selected from a group consisting of SiN_x , Ti, and Cr.

- [c19] 19. The light emitting device of claim 9, wherein the transparent conductive adhesive layer comprises at least one conductive material selected from a group consisting of intrinsically conducting polymer, and polymer mixed with conducting material.
- [c20] 20. The light emitting device of claim 19, wherein the conducting material comprises at least one material selected from a group consisting of indium tin oxide, cadmium tin oxide, antimony tin oxide, zinc oxide, zinc tin oxide, Au, and Ni/Au.
- [c21] 21. The light emitting device of claim 6, wherein the first cladding layer comprises at least one material selected from a group consisting of AlGaInP, AlN, GaN, AlGaIn, InGaIn, and AlInGaIn.
- [c22] 22. The light emitting device of claim 6, wherein the light emitting layer comprises at least one material selected from a group consisting of AlGaInP, GaN, InGaIn, and AlInGaIn.
- [c23] 23. The light emitting device of claim 6, wherein the second cladding layer comprises at least one material selected from a group consisting of AlGaInP, AlN, GaN, AlGaIn, InGaIn, and AlInGaIn.

- [c24] 24. The light emitting device of claim 6, wherein the first contact layer comprises at least one material selected from a group consisting of GaP, GaAs, GaAsP, InGaP, AlGaInP, AlGaAs, GaN, InGaN, and AlGaN.
- [c25] 25. The light emitting device of claim 6, wherein the second contact layer comprises at least one material selected from a group consisting of GaP, GaAs, GaAsP, InGaP, AlGaInP, AlGaAs, GaN, InGaN, and AlGaN.
- [c26] 26. The light emitting device of claim 6, wherein a second transparent conductive layer is formed between the second electrode and the second contact layer.
- [c27] 27. The light emitting device of claim 6, wherein the first transparent conductive layer comprises at least one material selected from a group consisting of indium tin oxide, cadmium tin oxide, antimony tin oxide, zinc oxide, and zinc tin oxide.
- [c28] 28. The light emitting device of claim 26, wherein the second transparent conductive layer comprises at least one material selected from a group consisting of indium tin oxide, cadmium tin oxide, antimony tin oxide, zinc oxide, and zinc tin oxide.